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NOTE ON THE AFFECTIVE VALUES OF COLORS

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While working over the data on the affective value of colors obtained from the laboratory drill class at Clark University in 1913, we found the results to be of such a nature, we believe, as to justify the following note. Fifteen subjects were used, all of them graduate students. The following twenty-one colors (Milton Bradley) were employed as stimuli:—red, orange, yellow, green, blue, violet and red violet, each of spectral saturation, tint 1 and shade 1. The colors were exposed upon a grey background and covered with a grey frame in which were cut two apertures 3.5 cm. square and separated by a grey strip 1.5 cm. wide. The method of paired comparison was employed, every color being shown with every other one. The subjects were instructed to give immediate judgments and reported no difficulty in doing so. Two separate series were used. In the first series, the subject was instructed to judge, in every case, which of the two colors was the more pleasant. In the second series, the subject was instructed to indicate, in the same manner, which of the two stimuli was the more unpleasant. The subjects were kept in ignorance of the results, as far as possible, until the completion of experimentation.

In Table I are to be found the frequencies with which each of our stimuli was judged pleasant and unpleasant. The values in this table are the average frequencies of judgment for all of our 15 subjects; that is, the absolute frequencies for each stimulus were added for all of our subjects and this sum was divided by 15. In the first column are found the colors of the stimuli. In the next column are found the average frequencies with which each stimulus was judged pleasant in the first series, in which the category of pleasantness was employed. The third column contains the average frequencies of unpleasant judgments upon our various stimuli from the second series where we employed the category of unpleasantness. The next column contains the values of the inverse frequencies of the unpleasant judgments found in the column just to the left. Finally in the last column are found the differences between the frequencies of the pleasant judgments and the inverse frequencies of the unpleasant judgments.

It will be noted that these differences in the last column are, on the whole, exceedingly small. On the average the difference is only 0.85. If we take regard of sign, the average difference is remarkably low, being only 0.081. The fact that pleasantness and unpleasantness are true psychological opposites is made very apparent when we plot the curves for the frequencies of the pleasant judgments and the inverse frequencies of the unpleasant judgments. These curves will be found in Plate I. The stimuli are laid off in order upon the abscissa and the frequencies are entered as ordinates. The two curves are very similar throughout their entire course and indeed, in most cases, are almost identical.

These results show, more exactly, we believe, than either the curves of Titchener¹ or those of Hayes² that pleasantness and unpleasant-

¹ E. B. Titchener, *Ein Versuch die Methode der paarweisen Vergleichung auf die verschiedenen Gefühlsrichtungen Anzuwenden*. Wundt Festschrift. *Philos. Stud.*, XX, 1902, 382 ff.

² S. P. Hayes, *A Study of the Affective Qualities*. *Amer. Jour. of Psychol.*, XVII, 1906, 358 ff.

ness are true psychological opposites. Or in other words, the process of judging does not seem to be influenced by the verbal form of the subject's announcement of the judgment. Furthermore, we believe, that this experiment recommends itself as an elementary drill procedure in the field of affection where introductory exercises are all too few. In most cases, the individual results of the several subjects were very nearly as remarkable as the group averages. A group average, such as the one given above, should certainly be instructive and of value to a class in an introductory course in psychology.

TABLE I.

Colors	Pleasant Judgments	Unpleasant Judgments	Inverse Frequencies of Unpleasant	Differences, Pleasant and Inverse Unpleasant
1 Red Tintl.....	10.4	9.8	10.2	-0.2
2 Red.....	13.3	7.1	12.9	-0.4
3 Red Shade.....	10.9	6.9	13.1	2.2
4 Orange Tl.....	3.9	14.9	5.1	1.2
5 Orange.....	12.2	9.4	10.6	-1.6
6 Orange Sl.....	5.5	13.6	6.4	0.9
7 Yellow Tl.....	7.0	13.5	6.5	-0.5
8 Yellow.....	4.1	16.1	3.9	-0.2
9 Yellow Sl.....	8.8	13.5	6.5	-2.3
10 Green Tl.....	7.3	12.7	7.3	0.0
11 Green.....	11.3	9.6	10.4	-0.9
12 Green Sl.....	9.4	9.9	10.1	0.7
13 Blue Tl.....	9.1	10.1	9.9	0.8
14 Blue.....	14.5	6.6	13.4	-1.1
15 Blue Sl.....	11.9	7.7	12.3	0.4
16 Violet Tl.....	10.3	8.3	11.7	1.4
17 Violet.....	13.7	6.3	13.7	0.0
18 Violet Sl.....	11.7	8.8	11.2	-0.5
19 Red Violet Tl.....	8.4	10.2	9.8	1.4
20 Red Violet.....	14.2	5.1	14.9	0.7
21 Red Violet Sl.....	11.7	8.2	11.8	0.1

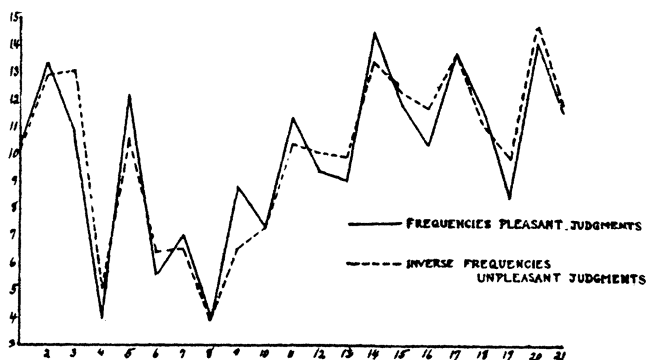


PLATE I